Regulators of G protein Signaling (RGS) proteins in GtoPdb v.2021.2

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Abstract

Regulator of G protein Signaling, or RGS, proteins serve an important regulatory role in signaling mediated by G protein-coupled receptors (GPCRs). They all share a common RGS domain that directly interacts with active, GTP-bound Gα subunits of heterotrimeric G proteins. RGS proteins stabilize the transition state for GTP hydrolysis on Gα and thus induce a conformational change in the Gα subunit that accelerates GTP hydrolysis, thereby effectively turning off signaling cascades mediated by GPCRs. This GTPase accelerating protein (GAP) activity is the canonical mechanism of action for RGS proteins, although many also possess additional functions and domains. RGS proteins are divided into four families, R4, R7, R12 and RZ based on sequence homology, domain structure as well as specificity towards Gα subunits. For reviews on RGS proteins and their potential as therapeutic targets, see e.g. [225, 529, 578, 583, 584, 742, 753, 444, 10].

Contents

This is a citation summary for Regulators of G protein Signaling (RGS) proteins in the Guide to Pharmacology database (GtoPdb). It exists purely as an adjunct to the database to facilitate the recognition of citations to and from the database by citation analyzers. Readers will almost certainly want to visit the relevant sections of the database which are given here under database links.

GtoPdb is an expert-driven guide to pharmacological targets and the substances that act on them. GtoPdb is a reference work which is most usefully represented as an on-line database. As in any publication this work should be appropriately cited, and the papers it cites should also be recognized. This document provides a citation for the relevant parts of the database, and also provides a reference list for the research cited by those parts. For further details see [65].

Please note that the database version for the citations given in GtoPdb are to the most recent preceding version in which the family or its subfamilies and targets were substantially changed. The links below are to the current version. If you need to consult the cited version, rather than the most recent version, please contact the GtoPdb curators.

Database links
Regulators of G protein Signaling (RGS) proteins
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=891

RZ family
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=892

Targets
- RGS17(regulator of G-protein signaling 17)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2801
- RGS19(regulator of G-protein signaling 19)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2802
- RGS20(regulator of G-protein signaling 20)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2803

R4 family
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=893

Targets
- RGS1(regulator of G-protein signaling 1)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2804
- RGS2(regulator of G-protein signaling 2)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2808
- RGS3(regulator of G-protein signaling 3)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2810
- RGS4(regulator of G-protein signaling 4)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2811
- RGS5(regulator of G-protein signaling 5)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward? objectId=2812
- RGS8(regulator of G-protein signaling 8)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2813
- RGS13(regulator of G-protein signaling 13)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2805
- RGS16(regulator of G-protein signaling 16)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2806
- RGS18(regulator of G-protein signaling 18)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2807
- RGS21(regulator of G-protein signaling 21)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2809

R7 family
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=894

Targets
- RGS6(regulator of G-protein signaling 6)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward? objectId=2815
- RGS7(regulator of G-protein signaling 7)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2816
- RGS9(regulator of G-protein signaling 9)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2817
- RGS11(regulator of G-protein signaling 11)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2814

R12 family
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=895

Targets
- RGS10(regulator of G-protein signaling 10)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2818
- RGS12(regulator of G-protein signaling 12)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2819
- RGS14(regulator of G-protein signaling 14)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2820

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